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Patentamt

Generaldirektion 2

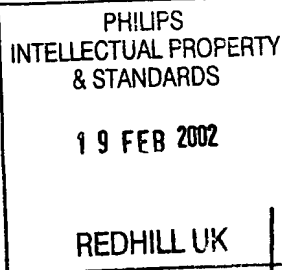
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Application No. 00 985 051.2-2205	Ref. PHB 34.424 EP	Date 12.02.2002
Applicant Koninklijke Philips Electronics N.V.		

**Communication pursuant to Article 96(2) EPC**

The examination of the above-identified application has revealed that it does not meet the requirements of the European Patent Convention for the reasons enclosed herewith. If the deficiencies indicated are not rectified the application may be refused pursuant to Article 97(1) EPC.

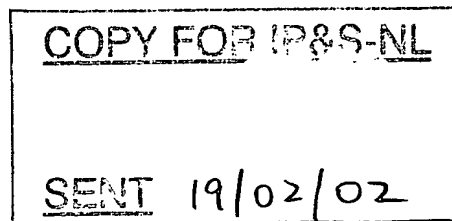
You are invited to file your observations and insofar as the deficiencies are such as to be rectifiable, to correct the indicated deficiencies within a period

**of 4 months**

from the notification of this communication, this period being computed in accordance with Rules 78(2) and 83(2) and (4) EPC.

Amendments to the description, claims and drawings are to be filed where appropriate within the said period in **three copies** on separate sheets (Rule 36(1) EPC).

**Failure to comply with this invitation in due time will result in the application being deemed to be withdrawn (Article 96(3) EPC).**



LERBINGER K J M  
Primary Examiner  
for the Examining Division

Enclosure(s): 3 page/s reasons (Form 2906)



The examination is being carried out on the application documents as published.

\* \* \* \* \*

1 Reference is made to the following documents:

D1: US 6,057,896  
D2: JP 10-186408  
D3: US 4,759,610  
D4: JP 4-219736

2 D1 was published after the priority date of the present application. Nevertheless its contents will be referred to in this communication on the assumption that it provides an accurate translation of the subject-matter of document D2, this document being published before the priority date of the present application. This assumption is based on the citation of the same three Korean patent applications as priority documents and furthermore on the correlation between the figures of the two documents. [Note however that the numbering of some of the figures has changed, e.g. figure 15A of D1 is figure 15 of D2 and figure 15B of D1 is figure 16 of D2).]

3 The present application does not meet the requirements of Article 52(1) EPC, because the subject-matter of claims 1 and 2 is not new in the sense of Article 54(1) and (2) EPC.

3.1 D1 describes in the passage from column 6, line 42, to column 7, line 8, with reference to figure 8, a transistor substrate (TFT substrate) for a liquid crystal display comprising: a substrate (transparent insulating substrate 10 such as glass); a transistor over the substrate, the transistor comprising an insulated-gate staggered structure having substantially coplanar source and drain regions and a gate region, a gate insulator (gate insulating layer 40) lying between the gate region and the source and drain regions; and a capacitor associated with the transistor and lying adjacent the transistor (see the figure), the capacitor comprising a stacked structure of two electrodes (pixel electrode 140; capacitor electrode 30) separated by a capacitor dielectric (layer 41), wherein the gate



insulator comprises a first inorganic layer (silicon nitride layer 42) and a second, polymer or spin-on glass layer (flowable organic insulating layer 41), of which layers only the polymer or spin-on glass layer extends to the capacitor to define the capacitor dielectric (see the figure; column 6, lines 66 and 67: "the silicon nitride layer (SiNx) 41 is formed only under the a-Si layer 50").

- 3.2 D1 mentions in column 5, lines 1 to 4, examples of flowable insulating material, such as polyimide and spin on glass.
- 3.3 It would therefore appear that the device described in D1 contains all the technical features of the present independent claim 1 and dependent claim 2, so that the subject-matter of these claims is not new. These claims are thus not allowable.
- 4 The subject-matter of dependent claim 3 does not involve an inventive step in the sense of Article 56 EPC.

D1 describes a TFT in which the gate electrode is deposited on the substrate, whereas claim 3 defines a top gate transistor, i.e. a transistor in which the drain and source electrodes are deposited on the substrate. However, the definition of a top gate transistor is merely a straightforward alternative to the structure known from D1 which the skilled person would select, in accordance with circumstances, without the exercise of inventive skill, since these alternatives are well known - see merely as example D3, from the same technical field as the present application, which shows in figures 7 and 8 these alternative realisations of a TFT; see also D4 which also shows a top gate TFT. Thus the solution proposed in claim 3 of the present application cannot be considered as involving an inventive step.

- 5 Independent claims 4, 6, and 11 do not meet the requirements of Article 84 PCT in that the matter for which protection is sought is not clearly defined.
- 5.1 The phrase "such that the charging time constant at each pixel is invariable to first order changes in the thickness of second polymer or spin-on glass layer defining the capacitor dielectric" in independent claim 4 is not understood; in particular the technical meaning of the term "first order changes" is completely unclear.



- 5.2 The phrase "the charging time constant of each pixel is invariable to first order changes in the thickness of second layer defining the capacitor dielectric" in independent claims 6 and 11 is not understood.
- 5 All the features defined in claim 6, insofar as this claim can be understood (see section 5.2), are known from D1, see section 3.1 above, so that the subject-matter of this claim is not new.
- 6 The subject-matter of independent method claim 10 lacks novelty since all the steps defined in the claim are known from D1 (see the passage cited in section 3.1 above).
- 7 The following is also noted.
- 7.1 Contrary to the requirements of Rule 27(1)(b) EPC, the relevant background art disclosed in the D2 is not mentioned in the description, nor is this document identified therein.
- 7.2 The introductory part of the description should be adapted to any amended claims pursuant to Rule 27(1)(c) EPC.
- 7.3 The features of the claims should be provided with reference signs placed in parentheses pursuant to Rule 29(7) EPC.
- 7.4 The wording of the last two paragraphs of the description, i.e. the passage from line 11 to 26 on page 15, implies that the subject-matter for which protection is sought may be different to that defined by the claims, thereby resulting in lack of clarity (Article 84 EPC) when used to interpret them (see the Guidelines, C-III, 4.3a). This statement should therefore be amended to remove this inconsistency.
- 7.5 When filing an amended set of claims, the requirements of Rule 29(2) EPC, which entered in force on 2 January 2002, should be observed.